



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/788,300	02/16/2001	Kerry J. Vahala	ALG08NP	1501
36394	7590	10/17/2003	EXAMINER	
CHRISTIE, PARKER & HALE, LLP 350 W. COLORADO BLVD. SUITE 500 PASADENA, CA 91105			MOONEY, MICHAEL P	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 10/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/788,300

Applicant(s)

VAHALA ET AL.

Examiner

Michael P. Mooney

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-46 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-28 and 31-46 is/are allowed.
- 6) ☒ Claim(s) 2-5, 7, 8, 10-14, 29 and 30 is/are rejected.
- 7) ☒ Claim(s) 6 and 9 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Examiner thanks Atty. Alavi (Reg. 40,310) for calling to the attention of the Examiner prior art reference US 6222964 Sadot et al. which has applicability to the claims.

Upon further investigation it has been determined that another reference is applicable to the claims as demonstrated in the rejection below.

Prior arguments are moot in light of the following new grounds for rejection.

Specification

The abstract of the disclosure is objected to because it is too long. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 2-4 are rejected under 35 U.S.C. 102b as being anticipated by Sadot et al. (6222964).

Sadot et al. teaches a resonant optical filter, comprising: a. a first transmission optical waveguide; b. a second transmission optical waveguide; and c. an optical resonator, evanescently optically coupled to each of the first and second transmission waveguides for transferring a resonant optical signal between the first and second transmission waveguides wherein: a. the first transmission optical waveguide transmits therethrough a plurality of optical signals, each carried by a respective waveguide optical mode corresponding to an optical channel of a WDM system; b. the second transmission optical waveguide being arranged to transmit therethrough a plurality of optical signals, each carried by a respective waveguide optical mode corresponding to an optical channel of a WDM system; c. each of the first and second transmission waveguides including an evanescent optical coupling segment therein; and, d. the optical resonator being positioned so that a portion of the resonant optical mode of the resonator at least partially spatially overlaps the evanescent portion of the optical mode in the first and second transmission waveguide optical coupling segments. (figs. 12a, 12b).

Thus claim 2 is met.

Sadot et al. teaches wherein the optical resonator includes a plurality of optical resonator segments, at least two of the optical resonator segments being evanescently optically coupled therebetween. (fig 13). Thus claim 3 is met.

Sadot et al. teaches the resonant optical filter of claim 3, wherein: a. an optical signal entering the resonant optical filter through the first transmission optical waveguide and carried by a WDM channel substantially resonant with an

Art Unit: 2877

optical resonance of at least one of the optical resonators is substantially transferred from the first transmission of optical waveguide to the second transmission optical waveguide and leaves the resonant optical filter through the second transmission optical waveguide; and, b. an optical signal entering the resonant optical filter through the first transmission optical waveguide and carried by a WDM channel substantially non-resonant with any optical resonance of the coupled-optical-resonator system substantially remains within the first transmission optical waveguide and leaves the resonant optical filter through the first transmission optical waveguide. (col. 14 lines 46-55; fig. 13).

Thus claim 4 is met.

Claims 7-8, 10 are rejected under 35 U.S.C. 102b as being anticipated by Stowe et al. (5138676).

Stowe et al. teaches a resonant optical filter for an optical WDM system, comprising: a. a first transmission fiber-optic waveguide, the waveguide having a fiber-optic-taper segment therein; b. a second transmission fiber-optic waveguide, the second waveguide having a fiber-optic-taper segment therein; c. a resonator fiber having at least one fiber-ring resonator segments formed thereon, each fiber-ring resonator being evanescently optically coupled together and thereby acting as a single fiber-ring resonator; d. the resonator fiber further including a taper positioner for engaging the fiber-optic-taper segment of at least one of the first and second transmission fiber optic waveguides and so as to

Art Unit: 2877

reproducibly establish and stably maintain an evanescent optical coupling of the fiber-ring resonator and at least one of the transmission fiber optic waveguides; and e. wherein at least one of the fiber optic taper segments of the first and second transmission fiber optic waveguides is partially wrapped around a portion of an outer circumference of at least one fiber-ring resonator segment. (See: figs. 7, 7a, col. 17 lines 11-49).

Thus claim 7 is met.

Stowe et al. teaches the resonator fiber includes a delocalized-optical-mode suppressor. (Col. 8 lines 53-57). Thus claim 8 is met.

Stowe et al. teaches the resonant optical filter of claim 7 wherein at least one of the fiber-optic-taper segments of the first and second transmission fiber optic waveguides is longitudinally displaced from the longitudinal midpoint of at least one of the fiber-ring resonator segments, thereby substantially reducing undesirable taper-induced optical loss of at least one fiber-ring resonator segments. (See: figs. 7, 7a, col. 17 lines 11-49). Thus claim 10 is met.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 29-30 are rejected under 35 U.S.C. 103a as being unpatentable over Stowe et al. (5138676).

Stowe et al. teaches a resonant optical filter, including: a first transmission optical waveguide adapted for transmitting therethrough a plurality of optical signals, the first transmission optical waveguide having an evanescent optical coupling segment;

a second transmission optical waveguide adapted for transmitting therethrough a plurality of optical signals, the second transmission optical waveguide having an evanescent optical coupling segment;

and a resonant optical component, the resonant optical component being evanescently optically coupled to each of the first transmission optical waveguide and the second transmission optical waveguide at the respective evanescent optical coupling segment thereof for transferring a resonant optical signal between the first transmission optical waveguide and the second transmission optical waveguide.

Furthermore, although Stowe et al. does not explicitly teach at least one of the first transmission optical waveguide and the second transmission optical waveguide being a polarization-preserving optical fiber it would have been obvious because it is NWK to do so for performance enhancement purposes.

Further, Stowe et al. teaches and the evanescent optical coupling segment thereof being a fiber-optic taper segment. (See: figs. 7, **7a**, col. 17 lines 11-49).

Thus claim 29 is rejected.

Stowe et al. teaches a resonant optical filter, including: a first transmission optical waveguide adapted for transmitting therethrough a plurality of optical signals, the first transmission optical waveguide having an evanescent optical coupling segment;

a second transmission optical waveguide adapted for transmitting therethrough a plurality of optical signals, the second transmission optical waveguide having an evanescent optical coupling segment;

and a resonant optical component, the resonant optical component being evanescently optically coupled to each of the first transmission optical waveguide and the second transmission optical waveguide at the respective evanescent optical coupling segment thereof for transferring a resonant optical signal between the first transmission optical waveguide and the second transmission optical waveguide.

Furthermore, although Stowe et al. does not explicitly teach at least one of the first transmission optical waveguide and the second transmission optical waveguide being an optical fiber and the evanescent optical coupling segment thereof being a side-etched optical fiber segment it would have been obvious because it is NWK to do so for performance enhancement purposes. (See: figs. 7, **7a**, col. 17 lines 11-49).

Thus claim 30 is rejected.

Claims 5, 11-14 are **rejected under 35 U.S.C. 103a as being unpatentable Sadot et al. (6222964).**

Sadot et al. teaches a resonant optical filter, comprising: a. a first transmission optical waveguide; b. a second transmission optical waveguide; and c. an optical resonator, evanescently optically coupled to each of the first and second transmission waveguides for transferring a resonant optical signal between the first and second transmission waveguides wherein: a. the first transmission optical waveguide transmits therethrough a plurality of optical signals, each carried by a respective waveguide optical mode corresponding to an optical channel of a WDM system; b. the second transmission optical waveguide being arranged to transmit therethrough a plurality of optical signals, each carried by a respective waveguide optical mode corresponding to an optical channel of a WDM system; c. each of the first and second transmission waveguides including an evanescent optical coupling segment therein; and, d. the optical resonator being positioned so that a portion of the resonant optical

mode of the resonator at least partially spatially overlaps the evanescent portion of the optical mode in the first and second transmission waveguide optical coupling segments. (figs. 12a, 12b).

Sadot et al. teaches wherein the optical resonator includes a plurality of optical resonator segments, at least two of the optical resonator segments being evanescently optically coupled therebetween. (fig 13).

Sadot et al. teaches the resonant optical filter of claim 3, wherein: a. an optical signal entering the resonant optical filter through the first transmission optical waveguide and carried by a WDM channel substantially resonant with an optical resonance of at least one of the optical resonators is substantially transferred from the first transmission of optical waveguide to the second transmission optical waveguide and leaves the resonant optical filter through the second transmission optical waveguide; and, b. an optical signal entering the resonant optical filter through the first transmission optical waveguide and carried by a WDM channel substantially non-resonant with any optical resonance of the coupled-optical-resonator system substantially remains within the first transmission optical waveguide and leaves the resonant optical filter through the first transmission optical waveguide. (col. 14 lines 46-55; fig. 13).

Furthermore, claim 5 merely changes where the light is entering, etc. from the 1st waveguide (WG) to the 2nd WG. This is merely taking advantage of the symmetric nature of such structures and doing this is obvious because it is NWK to utilize the symmetric nature of such devices. Thus claim 5 is rejected.

Art Unit: 2877

By the above reasons/references given in the device claim rejections, the method claims 11-14 are rendered obvious. Thus method claims 11-14, 41-46 are rejected. If Applicant disagrees with this obviousness holding, then Applicant should submit evidence showing this obviousness holding is errant. Examiner will then consider restricting.

Allowable Subject Matter

Claims 15-28, 31-46 are allowed.

Claims 6, 9, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

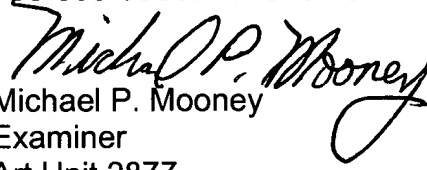
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael P. Mooney whose telephone number is 703-308-6125. The examiner can normally be reached during weekdays, M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank G. Font can be reached on 703-308-4881. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7721 for After Final communications.

Art Unit: 2877

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956. An alternative useful number for status inquiries is 703-306-3329.


Michael P. Mooney
Examiner
Art Unit 2877


Frank G. Font
Supervisory Patent Examiner
Art Unit 2877

FGF/mpm
10/6/03